REMARKS/ARGUMENTS

Amendments to Specification

Three editorial corrections have been made in the specification by replacing the paragraph starting on p. 10, line 8, replacing the paragraph starting on p. 11, line 14 and replacing the paragraph starting on p. 16, line 1.

The amendment starting on p. 10, line 8 consists of adding the full identification of "wavelength division multiplexing" for the acronym WDM. This amendment was made in response to an objection raised by the Examiner on page 2 of the Office Action.

Amendments to Drawings

Sheets 1 of 3 and 3 of 3 have been amended.

Figure 1 on sheet 1 of 3 has been amended to correct the numerical identifier associated with the functional block labelled as "1s" from 115 to 120. The same amendment has been made to Figure 3 on sheet 3 of 3.

Also in Figure 1 on sheet 1 of 3, the arrowhead located adjacent to and pointing in the direction of "CLK 110" on line 112 has been removed and an arrowhead has been added that is located at the junction of lines 111 and 112 pointing away from the direction of "CLK 110". A second arrowhead has been added that is located on line 112 adjacent to and pointing in the direction of "SAMPLES 130".

These amendments were made for consistency with the description and in response to an objection raised by the Examiner on page 2 of the Office Action.

Status of Claims

Claims 1-15 remain in the application.

Amendments to Claims

Allowance of claims 2, 10-13 and 15 is gratefully acknowledged.

Claims 2, 10, 13 and 15 have been amended to provide a proper antecedent basis for terms which were objected to by the Examiner on page 2 of the Office Action as having insufficient antecedent basis. The Examiner only objected to terms in claims 1 and 2, however terms in claims 10, 13 and 15 had the same terms lacking antecedents. It is submitted that these amendments do not change the patentability of these claims, but are made to overcome the 35 U.S.C. 112 rejection cited by the Examiner, specifically in the case of claim 2.

Claims 1, 3 and 14 have been similarly amended to provide a proper antecedent basis for several terms. These changes were made to overcome the 35 U.S.C. 112 rejection cited by the Examiner, specifically in the case of claim 1.

Claims 1, 3 and 14 have also been revised to further distinguish over the cited art as described below.

The phrase "perform the following steps" has been added to claims 14 and 15 and the form of the verbs has been amended to clarify the claims. It is submitted that these amendments do not change the patentability of these claims, but simply improve their readability.

35 U.S.C 102 Claim Rejections

The Examiner has rejected claims 1 and 14 under 35 U.S.C. 102(b) as being anticipated by Marrow (U.S. Patent No. 5,938,790).

The Examiner alleges that Marrow discloses a method of determining whether the bit disparity in a data stream is acceptable (col. 2, lines 63-67 and col. 3, lines 1-8), comprising the steps of: sampling the data stream (col. 1, lines 41-42 and col. 4, lines 14-16), detecting the number of samples of the data stream which have a predetermined one of two logical values within a time period (col. 4, lines 40-44, col. 5, lines 4-8), calculating the ratio of samples detected to have the predetermined logical value to the number of samples considered, and comparing the calculated ratio with a predetermined acceptable threshold (col. 6, lines 6-16).

Marrow discloses a system that "blocks the data into codewords and codes the digital data provided from the data source into NRZ write data in a manner that assigns the same system characteristics to every codeword including a BDS or Block Digital Sum that is equal to a fixed number of logic ones in each codeword and is Run Length Limited (RLL) contained" (col. 2,

67, col. 3, lines 1-5).

Marrow further discloses a valid codeword detection circuit (Figure 4). The input to the valid codeword detection circuit is an N-bit codeword. The valid codeword detection circuit is applied to a Running Digital Sum (RDS) counter. The RDS counter is reset at the beginning of each codeword by an N-bit counter. The N-bit counter counts the number of incoming bits and provides a reset signal at the end of every codeword. The RDS counter counts the number of logic ones in each codeword. The output of the RDS counter, which is equal to the number of logic ones in the codeword is supplied to a comparator. The comparator compares the output of the RDS counter with a "fixed value or bias labelled P" (col. 6. Line 7). Marrow is not calculating a ratio of a total number logic ones to a total number of samples that were detected in a time period, but is performing a comparison of the number of logic ones to a designated number of logic ones that should exist in the codeword. Marrow defines a binary threshold based on this comparison. If the number of logic ones that are counted is in agreement with the designated number of logic ones the codeword is passed to the next stage of the system without change. However, if the number of logic ones is not equal to the designated number of logic ones then the codeword is directed to another part of the system, which is capable of performing error correction.

Claim 1 has been amended to include a step of "counting a number of samples of the data stream which are being considered within the time period". This has been added to the claim to further emphasize that the step of "calculating a ratio of samples detected to have the predetermined logical value to the number of samples considered" is performed using the counted number of samples of the data stream which are being considered within the time period. The ratio is comprised of the number of samples of the predetermined one of the two logical values and the total number of counted samples that are being detected. Marrow is using the N-bit counter solely for the purpose of a being a reset device for the RDS counter counting logic ones. The comparison that Marrow makes is not based on the total number of samples but on the designated number of logic ones. Support for this amendment is found on page 12, lines 11-21. This section of the description describes the sample counter and how it operates.

A further amendment to claim 1 is the addition of the term "range" to further define the

"predetermined acceptable threshold". Marrow clearly defines a binary threshold for determining if error correction is required or not. As described in the description of the present application on page 14, lines 10-24, the calculated ratio is compared to a minimum threshold and if the ratio is larger than the minimum threshold it is compared to a maximum threshold as well. Therefore, the ratio is allowed to exist within a finite range, not simply a binary "go or no go" type threshold as is the case taught by Marrow.

It is submitted that amended claim 1 is novel and inventive over the prior art of Marrow and as such it is respectfully requested that the Examiner reconsider and withdraw the anticipation rejection.

Claim 14 recites a computer-readable medium for storing computer-executable instructions for performing the method recited in claim 1. Claim 14 has been amended in similar fashion to claim 1 to recite "count a number of samples of the data stream which are being considered within the time period". For the same reasons as described with respect to claim 1 it is submitted that claim 14 is novel and inventive over Marrow and as such should be allowable.

35 U.S.C 103 Claim Rejections

The Examiner has rejected claims 3 to 8 under 35 U.S.C. 103(a) as being unpatentable over Marrow as applied to claim 1, in view of U.S. Patent No. 6,229,462 (Dike).

The Examiner states that with regard to Applicant's claim 3, all the limitations of claim 1 are inherited and anticipated by Marrow. As claim 3 has been revised in a manner similar to claim 1 the arguments presented above in relation to claim 1 also apply to claim 3 and thus Marrow does not anticipate claim 3.

The Examiner further concedes that Marrow does not disclose a sub-sampler for sub-sampling the data stream. The Examiner does allege that Dike discloses an optical sound system comprising a sub-sampler for sub-sampling the data stream as found in claim 1 (col. 6, lines 28-37).

It is respectfully submitted that Dike does not disclose an optical sound system comprising a sub-sampler for sub-sampling the data stream. Dike discloses a method and apparatus for minimizing a set of clear and set bits across a serial line. The Examiner may have

confused Dike with what is disclosed in cited but unapplied reference U.S. Patent No. 5,271,022 (Berlekamp), which does seem to disclose an optical sound system.

It is also submitted that what is disclosed and claimed in claim 1 of Dike does not refer to a sub-sampling system. Dike is disclosing a method of reducing the disparity of set and clear bits transmitted across a serial line by comparing the line disparity of a first dataword and the word disparity of a second dataword and generating a third dataword by assigning a complement of the second dataword if the line disparity and the word disparity have a same sign, else assigning the second dataword and transmitting the third dataword. There is no mention of sub-sampling in the disclosed method steps cited by the Examiner. The disclosure simply states that serial data is converted to parallel data (col. 3, lines 1-2). This is not sub-sampling as all the data is still processed. Sub-sampling is a process of sampling or detecting fewer samples than are actually included in the entire data set.

It is respectfully submitted that what is recited in claim 3 by Applicant is novel and inventive over the combination of Marrow and Dike as Marrow does not disclose all that is taught in claim 3, as inherited from the subject matter in claim in claim 1 for the reasons discussed above with respect to claim 1 and as Dike does not disclose a sub-sampler for sub-sampling the data stream.

Claims 4 to 8 are dependent on claim 3 and as claim 3 should be allowable for the reasons described above, claims 4 to 8 should also be allowable.

As claims 3 to 8 are non-obvious with respect to the combination of Marrow and Dike it is respectfully submitted that the Examiner reconsider and withdraw the 35 U.S.C. 103(a) rejection.

The Examiner has rejected claim 9 under 35 U.S.C. 103(a) as being unpatentable over Marrow in view of Dike.

The Examiner alleges Marrow discloses a 1's detector coupled to the sub-sampler for identifying those samples of the data stream which have a logical value of one (col. 5, lines 4-8); a 1's counter coupled to the 1's detector for determining the number of identified samples within a time period (Fig. 4, col. 5, lines 4-8); a timer coupled to the 1's counter and the samples counter for indicating the start and end of the time period (Fig. 2 (item 49), col. 4, lines 17-25); a

comparator coupled to the 1's counter and the samples counter for comparing the number of identified samples with the total number of samples taken within the time period (Fig. 4 (item 107,111)); and a memory element coupled to the comparator for storing the comparison results for monitoring (Fig. 3 (item 83)).

Marrow does not disclose or teach a comparator coupled to the 1's counter and the samples counter for comparing the number of identified samples with the total number of samples taken within the time period. As described above Marrow discloses a comparator that is coupled to the 1's counter and a fixed value biased line for determining if the 1's count is equal to the predetermined number of 1's that should exist in the codeword.

The Examiner alleges that Dike discloses a method for minimizing disparity comprising a sub-sampler for sub-sampling the data stream; a samples counter for determining the number of samples within the time period; a clock generator coupled to the sub-sampler for indicating when a sample should be taken and coupled to the samples counter for indicating when a sample was taken. The Examiner states these attributes are found at col. 3, lines 20-32, lines 63-67, col. col. 4, lines 1-49 and 6, lines 28-37.

As described above with respect to the 35 U.S.C. 103(a) rejection it is contended that Dike does not comprise a sub-sampler. Dike does contain clocking and syncronization signals to ensure the proper advancement of parallel datawords (col. 4, lines 34-35). However, as there is no sub-sampler disclosed in Dike the clocking signal can not be attached to a component that is not disclosed.

Dike also does not specifically disclose a samples counter. It may be that the Examiner is alleging that the word disparity decoder circuit 270 may include a counter for determining if the tenth least significant bit is set so as to generate a value to the word disparity positive output line 410 or similarly for determining if the ninth least significant bit is set so as to generate a value to the word disparity negative output line 430. There is no clear indication that a counter is used to determine the condition of the ninth or tenth least significant bit. It is respectfully submitted that there is no other disclosure of a samples counter that can be found in Dike.

It is respectfully submitted that what is recited in claim 9 by Applicant is novel and inventive over the combination of Marrow and Dike as Marrow does not disclose all the

elements which the Examiner alleges are disclosed with respect to claim 9 and as Dike does not disclose a sub-sampler for sub-sampling the data stream or a samples counter for counting the number of samples.

As claim 9 is non-obvious with respect to the combination of Marrow and Dike it is respectfully submitted that the Examiner reconsider and withdraw the 35 U.S.C. 103(a) rejection.

In view of the forgoing, early favorable consideration of this application is earnestly solicited.

Respectfully submitted,

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